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EXAMINER	
RAPHAEL, COLLEEN M	
ART UNIT	PAPER NUMBER
1724	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,878	BAYER ET AL.	
	Examiner	Art Unit	
	COLLEEN M. RAPHAEL	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/26/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claims 20-44 are current in the application. Claims 20-44 are currently under examination. Claims 1-19 were cancelled by Applicant by a preliminary amendment.

Priority

2. Applicant is advised of possible benefits under 35 U.S.C. 119(a)-(d), wherein an application for patent filed in the United States may be entitled to the benefit of the filing date of a prior application filed in a foreign country.

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on August 28, 2006 was filed on the mailing date of the application on August 28, 2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Specification

5. The disclosure is objected to because of the following informalities: in para. 0009, preferred uses of the method being defined in reference to claims 14-17, and in para. 0010, the electrode being defined in reference to claim 18.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

6. Claim 25 is rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility. It is unclear how or whether the mechanical vibration of the electrode replaces the need for an electrolyte. In order to have an electrochemical reaction, by definition charge carriers must be present and be moving throughout a medium. The Applicant has not given any rationale or mechanism for how the mechanical vibration of the electrode produces moving charge carriers within the medium between the electrodes. The Examiner will construe this claim as a vibrating electrode with an electrolyte present for the purposes of compact prosecution.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 20, 21, 27, 31, and 33-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Updegrove et al (US 6,165,345).

9. Regarding claims 20 and 44, Updegrove et al teaches a method for electrochemically stripping components comprising the steps of: connecting a component to be stripped to a positive (or one of a positive or negative) terminal of a voltage or current source and an electrode to a negative (or to the other of the positive and the negative) terminal of the voltage or current source (col. 1, lines 52-55);

positioning the electrode so that a gap between a region of the component to be stripped and the electrode is a same size over an entirety of the region to be stripped (where the Examiner is construing the tailoring of the grid as positioning the electrode in relationship to the component in e.g. a three-dimensional contour) (col. 1, lines 55-59), the electrode being adapted to a region of the component to be stripped (col. 1, lines 55-59); and electrochemically stripping the component. (col. 1, line 67 and col. 2, lines 1-2). Therefore, the method of Updegrove anticipates the method of claims 20 and 44.

10. Regarding claim 21, Updegrove teaches that a surface of the electrode facing the component to be stripped is precisely adapted in an electrode three-dimensional contour to a component three-dimensional contour of a surface of the region to be stripped (where the Examiner is construing the tailoring of the grid as positioning the electrode in relationship to the component in e.g. a three-dimensional contour). (col. 1, lines 55-59)

11. Regarding claim 27, Updegrove teaches that the electrode is a porous electrode (where the Examiner is construing the shaped grid as porous) (col. 1, lines 54-55), and further comprising supplying or replacing an electrolyte through the electrode. (col. 1, lines 43-46)

12. Regarding claim 31, Updegrove et al teaches that process parameters used for the stripping are selected to prevent a passivation of the region to be stripped (where the Examiner is construing the lack of damage to the base metal as a lack of passivation) (col. 2, lines 45-47), so that an entirety of stripping a coating from the

region of the component is capable of being implemented in one sequence of operation until complete removal of the coating is achieved. (col. 1, lines 44-48)

13. Regarding claim 33, Updegrove et al teaches that the component may be a gas turbine component. (col. 1, lines 4-6 and col. 3, lines 7-8)

14. Regarding claim 34, Updegrove et al teaches that the stripping is at least part of a step of repairing the gas turbine component. (col. 1, lines 5-6 and col. 2, lines 20-26)

15. Regarding claim 35, Updegrove et al teaches that the gas turbine blades are made of a titanium-based alloy or of a nickel-based alloy (where the Examiner is construing the Rene 80 base metal as a nickel-based alloy) (col. 2, lines 52-55).

16. Regarding claims 36 and 37, Updegrove et al teaches removing a metallic coating from the component (where the Examiner is construing the aluminide coating as a metallic coating), the component being a gas turbine component (specifically a gas turbine blade), the metallic coating to be removed being adapted to a composition of the gas turbine component. (col. 2, lines 29-32)

17. Claims 40 and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Goto et al (US Pat. Pub. 2006/0086617 A1).

Regarding claim 40, Goto et al teaches an electrode for electrochemically stripping components comprising: an impression of a component region to be stripped (where the Examiner is construing stripping as an electrical discharge surface-treatment method), the impression being formed from a moldable, electrically conductive

compound. (para. 0015, lines 5-7). Therefore, the electrode of Goto et al anticipates the electrode of claim 40.

Regarding claim 43, Goto et al teaches that the electrode is porous, and the moldable, electrically conductive compound is a sintered material. (para. 0042, lines 5-8)

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

20. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

21. Claims 22-26, 28-29, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Updegrove et al (US 6,165,345) in view of Tchugunov (US 6,835,299 B1).

22. Regarding claims 22, 23, and 24, Updegrove et al teaches a method for electrochemically stripping components comprising the steps of: connecting a component to be stripped to a positive (or one of a positive or negative) terminal of a voltage or current source and an electrode to a negative (or to the other of the positive and the negative) terminal of the voltage or current source (col. 1, lines 52-55); positioning the electrode so that a gap between a region of the component to be stripped and the electrode is a same size over an entirety of the region to be stripped (where the Examiner is construing the tailoring of the grid as positioning the electrode in relationship to the component in e.g. a three-dimensional contour) (col. 1, lines 55-59), the electrode being adapted to a region of the component to be stripped (col. 1, lines 55-59); and electrochemically stripping the component. (col. 1, line 67 and col. 2, lines 1-2).

23. Updegrove et al does not explicitly teach that the gap between the region of the component to be stripped and the electrode is smaller than 2 mm or 1 mm over the entirety of the region to be stripped, or where the gap is between 10 μm and 1 mm.

24. Tchugunov teaches electrochemically machining (i.e. electrolytically removing material from) a component where the gap between the cathode and the anode may be

on the order of 0.01 to 0.005 mm (col. 1, lines 49-52). Tchugunov teaches that this achieves sharper machining definition. (col. 1, lines 48-49).

25. Therefore, it would have been obvious to one with ordinary skill, in the art at the time of the invention, to modify the method of Updegrove et al by using a smaller gap as taught by Tchugunov, because this would achieve sharper machining definition. (see Tchugunov, col. 1, lines 48-49).

26. Regarding claims 25 and 26, Updegrove et al teaches a method for electrochemically stripping components as discussed above.

27. Updegrove et al does not explicitly teach that the electrode executes a mechanical vibration to replace an electrolyte.

28. Tchugunov teaches that the electrode executes a mechanical vibration (where the Examiner is construing the claim as not necessitating replacement of the electrolyte by the mechanical vibration; see 35 US 101 discussion above), wherein a frequency of the mechanical vibration may be between 1 Hz to 100 Hz, and an amplitude of the mechanical vibration may be between 0.1 mm and 2 mm (where the Examiner is construing the total spacing as requiring a limit to the amplitude of the mechanical vibration) (col. 1, lines 53-59 and col. 8, lines 12-15). Tchugunov teaches that this allows use of much smaller gaps and therefore produces sharper machining definition. (col. 1, lines 45-49)

29. Therefore, it would have been obvious to one with ordinary skill, in the art at the time of the invention, to modify the method of Updegrove et al by using an electrode executing a mechanical vibration as taught by Tchugunov, because this would allow use

of much smaller gaps and therefore produce sharper machining definition. (see Tchugunov, col. 1, lines 45-49)

30. Regarding claims 28 and 29, Updegrove et al teaches a method for electrochemically stripping components as discussed above, where the total process cycle is on the order of minutes. (col. 2, lines 2-8)

31. Updegrove et al does not explicitly teach that the current or the voltage applied for the stripping process is time pulsed.

32. Tchugunov teaches time pulsing of the current applied for the stripping process, where the current pulses may have a fixed phase relationship with the mechanical vibration of the electrode and so may have a pulse frequency between e.g. 1-100 Hz. (col. 2, lines 1-5 and col. 1, lines 53-56). Tchugunov teaches that this time pulsing promotes erosion efficiency and minimizes stray erosion. (col. 2, lines 6-15)

33. Therefore, it would have been obvious to one with ordinary skill, in the art at the time of the invention, to modify the method of Updegrove et al by using a time-pulsed current during the stripping process as taught by Tchugunov, because this would promote erosion efficiency and minimize stray erosion. (see Tchugunov, col. 2, lines 6-15)

34. Regarding claim 32, Updegrove et al teaches a method for electrochemically stripping components as discussed above.

35. Updegrove et al does not explicitly teach stopping or de- energizing the stripping as a function of a change in an electric potential.

36. Tchugunov teaches teach stopping or de- energizing the stripping as a function of a change in an electric potential (where the Examiner is construing the control of the machining rate as stopping or de-energizing the stripping). (col. 3, lines 12-17).

37. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Updegrove et al (US 6,165,345) in view of Tchugunov (US 6,835,299 B1) as applied to claim 28 above, and further in view of Jaworowski et al (US 6,176,999 B1).

38. Regarding claim 30, Updegrove et al teaches a method for electrochemically stripping components as discussed above, where the total process cycle is on the order of minutes. (col. 2, lines 2-8)

39. Updegrove et al does not explicitly teach that the current or the voltage applied for the stripping process is time pulsed.

40. Tchugunov teaches time pulsing of the current applied for the stripping process, where the current pulses may have a fixed phase relationship with the mechanical vibration of the electrode and so may have a pulse frequency between e.g. 1-100 Hz. (col. 2, lines 1-5 and col. 1, lines 53-56). Tchugunov teaches that this time pulsing promotes erosion efficiency and minimizes stray erosion. (col. 2, lines 6-15)

41. Neither Updegrove et al nor Tchugunov explicitly teaches that the average amperage applied for the stripping process is between 0.1 A/mm^2 and 1.5 A/mm^2.

42. Jaworowski et al teaches that the average amperage applied for the stripping process may be in the range of e.g. 50 A/cm^2 (i.e. 0.5 A/ mm^2) (col. 5, lines 67 and col. 6, lines 1-2). Jaworowski et al teaches that an optimum point of greatest stripping

selectivity may be found from measuring the current density of coated and stripped airfoils. (col. 3, lines 1-3)

43. Therefore, it would have been obvious to one with ordinary skill, in the art at the time of the invention, to modify the method of Updegrove and Tchugunov by applying an average amperage between 0.1 A/mm^2 and 1.5 A/mm^2 as taught by Jaworowski et al, because this could be at an optimum point of greatest stripping selectivity found from measuring the current density of coated and stripped airfoils. (see Jaworowski et al, col. 3, lines 1-3)

44. Claims 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Updegrove et al (US 6,165,345) in view of Kariya et al (US 6,531,049 B1).

45. Regarding claims 38 and 39, Updegrove et al teaches a method for electrochemically stripping components comprising the steps of: connecting a component to be stripped to a positive (or one of a positive or negative) terminal of a voltage or current source and an electrode to a negative (or to the other of the positive and the negative) terminal of the voltage or current source (col. 1, lines 52-55); positioning the electrode so that a gap between a region of the component to be stripped and the electrode is a same size over an entirety of the region to be stripped (where the Examiner is construing the tailoring of the grid as positioning the electrode in relationship to the component in e.g. a three-dimensional contour) (col. 1, lines 55-59), the electrode being adapted to a region of the component to be stripped (col. 1, lines

55-59); and electrochemically stripping the component. (col. 1, line 67 and col. 2, lines 1-2), the component being made of e.g. a nickel-based alloy. (col. 2, lines 52-53)

46. Updegrove et al does not explicitly teach removing a coating of titanium nitride (TIN) or of titanium aluminium nitride (TiAlN) or of titanium zirconium nitride (TiZrN) or of chromium aluminium nitride (CrA1N) or chromium nitride (CrN) from the component.

47. Kariya et al teaches electrochemically removing a TiAlN film from a component (where the Examiner is construing the component as inclusive of titanium-based or nickel-based alloys). (col. 3, lines 52-56). Kariya et al teaches that this allows readjustment, recoating, and recycling of the component. (col. 1, lines 15-26).

48. Therefore, it would have been obvious to one with ordinary skill, in the art at the time of the invention, to modify the method of Updegrove et al by removing the TiAlN coating as taught by Kariya et al, because this would allow readjustment, recoating, and recycling of the component. (see Kariya et al, col. 1, lines 15-26).

49. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goto et al (US Pat. Pub. 2006/0086617 A1) in view of Ogawa et al (US 6,596,200 B1).

50. Regarding claim 42, Goto et al teaches an electrode for electrochemically stripping components comprising: an impression of a component region to be stripped (where the Examiner is construing stripping as an electrical discharge surface-treatment method), the impression being formed from a moldable, electrically conductive compound. (para. 0015, lines 5-7).

51. Goto et al does not explicitly teach that the compound is a cured compound.

52. Ogawa et al teaches a moldable, electrically conductive compound. (col. 5, lines 60-67). Ogawa et al teaches that this compound may be used to manufacture a cover (where the Examiner is construing the cover as the electrode) having sufficient surface flexibility to cover a casing (where the Examiner is construing the casing as the component) having a complicated surface configuration. (col. 4, lines 53-64).

53. Therefore, it would have been obvious to one with ordinary skill, in the art at the time of the invention, to modify the electrode of Goto et al by using the moldable, electrically conductive compound of Ogawa et al, because this would allow manufacture of an electrode having sufficient surface flexibility to cover a component having a complicated surface configuration. (see Ogawa et al, col. 4, lines 53-64).

54. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goto et al (US Pat. Pub. 2006/0086617 A1) in view of Updegrove et al (US 6,165,345).

55. Regarding claim 42, Goto et al teaches an electrode for electrochemically stripping components comprising: an impression of a component region to be stripped (where the Examiner is construing stripping as an electrical discharge surface-treatment method), the impression being formed from a moldable, electrically conductive compound. (para. 0015, lines 5-7).

56. Goto et al does not explicitly teach that the impression is based on a gas turbine component.

57. Updegrove et al teaches that a surface of the electrode facing the component to be stripped is precisely adapted in an electrode three-dimensional contour to a

component three-dimensional contour of a surface of the region to be stripped (where the Examiner is construing the tailoring of the grid as positioning the electrode in relationship to the component in e.g. a three-dimensional contour). (col. 1, lines 55-59) Updegrove teaches that this allows uniform coating removal or variation of the removal of the coating along the length of the blade. (col. 2, lines 23-25)

58. Therefore, it would have been obvious to one with ordinary skill, in the art at the time of the invention, to modify the electrode of Goto et al by basing the impression on a gas turbine component as taught by Updegrove et al, because this would allow uniform coating removal or variation of the removal of the coating along the length of the blade. (see Updegrove, col. 2, lines 23-25).

Conclusion

59. Claims 20-44 are REJECTED. Claims 1-19 are CANCELLED.

60. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 3,271,283 (Methods and apparatus for electrochemical shaping of a workpiece) US 3,405,011 (Electrode comprising thin porous metallic matrix and process for making same); US 6,352,636 B1 (Electrochemical System and Process for Stripping Metallic Coatings).

61. Any inquiry concerning this communication or earlier communications from the examiner should be directed to COLLEEN M. RAPHAEL whose telephone number is (571)270-5991. The examiner can normally be reached on Monday-Friday, 9:30 a.m. to 6:00 p.m.
62. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith D. Hendricks can be reached on (571)272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
63. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. M. R./
Examiner, Art Unit 1724
April 6, 2011

/Keith D. Hendricks/
Supervisory Patent Examiner, Art Unit 1724